REMARKS

Reconsideration of the present application in view of the above amendments and following remarks is respectfully requested.

Status of the Claims

Claims 19-42 are presented. Claims 35-36 and 40 are amended to emphasize that the process produces benzoate ester in a purity suitable for use in cosmetic preparations without the need for further purification. Support is found throughout the specification as filed, *inter alia* on page 1, lines 15-19. No claims are cancelled. No new claims are added.

No new matter has been introduced.

Summary of the Invention as Claimed

As presently amended the claimed invention is drawn to a process for the production of a benzoic acid ester by reaction of benzoic acid or a benzoic acid ester with one or more alcohols in the presence of a catalyst consisting essentially of tin(II) oxide in combination with a phosphorus(I) compound. One embodiment is drawn to the process comprising the steps of (A) reacting the components with heating under normal pressure, (B) continuing reacting under reduced pressure at elevated temperature, and (C) completing the reaction under high vacuum at elevated temperature (claim 28-42). After separating the catalysts by precipitation and filtration, benzoate ester is obtained in a purity suitable for use in cosmetic preparations without the need for further purification (claims 35-36 and 40).

Rejections under 35 U.S.C. § 103(a)

Previously pending claims 19-23, 26 and 28-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Scala, Jr. (US 4,275,222; "Scala") in view of Williams et al. (US 3,972,962; "Williams") and further in view of Piispanen et al. (J. Surfactants and Detergents, 2002, 5(2), 165-168; "Piispanen").

Previously pending claims 19-22, 24-26 and 28-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Eckey (US 2,182,397) in view of Williams and further in view of Piispanen.

Previously pending claims 19, 20, 23, and 26-42 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Clinton et al. (JACS, 1948, 70, 3135-3136; "Clinton") in view of Williams and further in view of Piispanen.

Applicants respectfully traverse these rejections.

The Examiner separately cited Scala, Eckey and Clinton for their esterification methods using benzoic acid and alcohols in the presence of specific catalysts, with Scala teaching methanesulfonic acid as catalyst, Eckey teaching sulfuric acid or an arylsulfonic acid as catalyst, and Clinton teaching sulfuric acid as catalyst. As noted by the Examiner, these references do not teach or suggest applicants' combination of tin(II) oxide and a phosphorus(I) compound as the catalyst system, nor do they teach the procedural steps such as order of addition, temperature and pressure of the reaction, or separation of catalyst as disclosed by applicants' steps (A)-(D). In order to cure these deficiencies the Examiner joined the combination of Williams and Piispanen to each of the above references individually.

Williams discloses polyester-based plasticizers for polyvinyl chloride, end capped with a benzoic acid ester group. Williams teaches that suitable esterification catalysts include, *inter alia*, sulfuric acid, p-toluenesulfonic acid, methanesulfonic acid and **alkyltin oxides.** The Examiner stated that "[s]ince the catalysts are listed together and are indicated as capable of acting as catalysts in an esterification process one skilled in the art would treat methanesulfonic acid and **tin oxides** as equivalents" (Office Action, page 4, Secondary references; emphasis added). With respect, the breadth of the Examiner's argument is without support. Williams actually lists methanesulfonic acid and **alkyltin oxides** together as suitable esterification catalysts. Alkyltin oxides are distinct from tin(II)

oxide. Alkyltin oxides have tin in the Sn(IV) oxidation state, while tin(II) oxide has tin in the Sn(II) oxidation state. In addition alkyltin oxides bear two additional alkyl ligands which modify the chemistry of the compound. Both of these differences, the oxidation state and the presence or absence of organic ligands, affect the Lewis acidity of the metal, which as is commonly known in the art, is important to the ability of the compound to act as an esterification catalyst. Thus the Examiner's generalization of the suitable esterification catalysts cited by Williams from alkyltin oxides to tin(II) oxide is unsupported. It is not clear from Williams that tin(II) oxide would be equivalent to alkyltin oxides as esterification catalysts.

Piispanen discloses the synthesis of dehydroabeitic acid methyl esters using either p-toluenesulfonic acid **or** phosphinic acid as a catalyst.

Neither Williams nor Piispanen anywhere indicate that these catalysts are to be used **in combination**. As specifically pointed out in the previous reply, some of Williams' listed catalysts actually cannot be used in combination because they are not compatible with one another. For example sulfuric acid and sodium carbonate are reported as effective catalysts by Williams, but should certainly not be used in combination, which combination would result in an acid-base reaction to form sodium sulfate, which common sense suggests would be ineffective as an esterification catalyst. Thus, for the sake of argument, even if tin(II) oxide were to be considered as equivalent to alkyltin oxides for the esterification reaction of Williams, and it is not as discussed above, the combination of such a catalyst with a phosphorus(I) compound is nowhere taught or suggested.

Thus, the present invention's specific combination of tin(II) oxide and a phosphorous(I) acid or salt is not taught, suggested or motivated by the cited combination of art. Further, the Examiner states that "[t]he expected result is that

the reaction would yield the same product of the same quality" as obtained by Scala or Eckey or Clinton (Office Action, pages 5, 7 and 8, respectively). However, it is clear that applicants' process uniquely provides benzoate esters in a high purity suitable for use in cosmetic preparations **without the need for further purification** (claims 35-36 and 40). Thus, applicants' process is unobvious over the cited art.

Conclusion

In summary, in view of the above claim amendments and remarks, applicants believe that all of the pending claims as amended are in condition for allowance. The Examiner is respectfully requested to reconsider, withdraw the rejections and allow the claims.

If any additional fees are required in support of this application, authorization is granted to charge our Deposit Account No. 50-1943.

Respectfully submitted,

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